ASSIGNMENT 5

Textbook Assignment: "Hydraulic Contamination and Related Servicing/Test Equipment." chapter 4, pages 4-1 through 4-40.

5-1. Which of the following problems is a major cause of hydraulic system and component failure?

1. Contamination
2. Loss of fluid
3. Fluid overheating
4. Air in the system

5-2. What is the maximum acceptable Navy Standard Class hydraulic fluid particulate level for (a) naval aircraft and (b) support equipment?

1. (a) 3 (b) 3
2. (a) 3 (b) 5
3. (a) 5 (b) 3
4. (a) 5 (b) 5

5-3. Hydraulic system fluid analysis is NOT required in which of the following situations?

1. When a hydraulic pump fails
2. When extensive maintenance has occurred
3. When the system is subjected to excessive heat
4. When the aircraft has flown 2 flights in less than 12 hours

5-4. When hydraulic system fluid is lost to the point that the hydraulic pump runs dry or cavitates, you should take what action?

1. Change the defective pump and flush the system
2. Change the defective pump and filter elements, and purge the system
3. Change the defective pump, check the filter elements, and decontaminate as required
4. Change the defective pump, change all filter elements, and decontaminate as required

5-5. Which of the following lubricants is NOT approved for O-ring seals?

1. VV-L-800
2. MIL-G-81322
3. MIL-H-46170
4. MIL-H-83282

5-6. Which of the following solvents is approved for cleaning hydraulic test stand connectors?

1. Naphtha
2. P-D-680
3. MIL-C-81302
4. MIL-T-81533A

5-7. Contamination can occur in which of the following forms?

1. Liquid only
2. Solid matter only
3. Gas or solid matter only
4. Liquid, solid matter, or gas

5-8. What type of contamination is most often found in naval aircraft hydraulic systems?

1. Gas
2. Air
3. Particulate
4. Organic oxidation

5-9. Organic contamination is produced by all EXCEPT which of the following processes?

1. Glass bead peening
2. Polymerization
3. Oxidation
4. Wear

5-10. Most of the metallic solid contamination is caused by which of the following hydraulic components?

1. Hoses
2. Pumps
3. Actuators
4. Reservoirs

5-11. The inorganic solid hydraulic system contaminant group includes all EXCEPT which of the following materials?

1. Dust
2. O-rings
3. Silicates
4. Paint particles

5-12. A spongy response during a hydraulic system operation would normally be caused by what type of contamination?

1. Air
2. Water
3. Inorganic
4. Particulate

5-13. Chlorinated solvents will hydrolyze to form hydrochloric acids when allowed to combine with minute amounts of which of the following substances?

1. Oil
2. Fuel
3. Water
4. Oxygen

5-14. A hydraulic oil cooler leak would cause which of the following types of contamination?

1. Air
2. Particulate
3. Foreign fluid
4. Nonmetallic solid

5-15. You can minimize the introduction of external or self-generated contaminants before collecting a hydraulic fluid sample by taking which of the following precautions?

1. Cleaning the internal parts of the fitting
2. Cleaning the external parts of the valve or fitting only
3. Dumping a small amount of the initial fluid flow only
4. Cleaning the external parts of the valve or fitting and dumping a small amount of the initial fluid flow

5-16. You should take a fluid sample from what point in a hydraulic system?

1. Downstream of any return line filters
2. Downstream of any suction line filters
3. From the system reservoir if it is the makeup type
4. Upstream of any return or suction line filters

5-17. The internal porting of a sampling point should not impede the passage of hard particulate matter up to what maximum diameter?

1. 250 microns
2. 500 microns
3. 750 microns
4. 900 microns

5-18. What is the primary hydraulic fluid contamination measurement method used at all levels of maintenance?

1. Visual
2. Patch testing
3. Halogen testing
4. Electronic particle count analysis

5-19. When you perform a hydraulic fluid patch test, the appearance of droplets or a stain on the test filter is an indication of what condition?

1. Free water
2. Fuel contamination
3. Improper sampling technique
4. Chlorinated solvent contamination

5-20. Before you sample SE hydraulic systems, the fluid must be recirculated at the full flow rate a minimum of how many minutes?

1. 5 min
2. 10 min
3. 15 min
4. 20 min

5-21. Aircraft filter assemblies are sampled by removing the filter bowl and transferring the fluid contents of both the bowl and the element to a clean sample bottle.

1. True
2. False

5-22. When processing a hydraulic fluid sample, you must use what type of filter?

1. Single 20-mm test filter
2. Single 47-mm test filter
3. Double 21-mm test filter
4. Double 47-mm test filter

5-23. You are processing a fluid sample and you have poured the hydraulic fluid from the graduate into the funnel. What total amount of solvent should you pour into the graduate?

1. 15 mL
2. 50 mL
3. 100 mL
4. 120 mL

5-24. If the hydraulic fluid test filter displays a rust color, what color contamination standard should you use for comparison?

1. Tan
2. Rust
3. Gray
4. Silica

5-25. An electronic particle count analysis of hydraulic fluid will NOT be affected by particles smaller than what size?

1. 50 microns
2. 25 microns
3. 15 microns
4. 5 microns

5-26. The halogen leak detector is powered by what source of energy?

1. Solar
2. Battery
3. 110 volts ac
4. 220 volts ac

5-27. When you circulate contaminated fluid through the filters in an aircraft and a portable hydraulic test stand, you are using which of the following decontamination methods?

1. Purging
2. Flushing
3. Purifying
4. Recirculation cleaning

5-28. Unless specified by other publications, a hydraulic system undergoing the recirculation cleaning process should be cycled a minimum of how many complete cycles?

1. 5 cycles
2. 10 cycles
3. 15 cycles
4. 25 cycles

5-29. You should perform a hydraulic fluid patch test from what system component to determine when system flushing is complete?

1. System reservoir fluid
2. System return line fluid
3. System pressure line fluid
4. Test stand reservoir fluid

5-30. Test stands used for hydraulic system flushing must have an internal reservoir that holds what minimum number of gallons?

1. 10 gal
2. 14 gal
3. 16 gal
4. 20 gal

5-31. Which of the following authorities is required to recommend and supervise an aircraft hydraulic system purging?

1. The commanding officer
2. The maintenance officer
3. The cognizant engineering activity
4. The cognizant functional wing commander

5-32. When a hydraulic system is purified, the fluid going to the purification tower is first filtered by what size filter?

1. 5 micron
2. 15 micron
3. 3 micron
4. 25 micron

5-33. When considering maintenance man-hours and material requirements, what method of hydraulic system decontamination is the most effective?

1. Purging
2. Flushing
3. Purifying
4. Recirculation cleaning

5-34. What fire-resistant type of hydraulic fluid was developed to replace MIL-H-5606?

1. MIL-H-6083
2. MIL-H-83282
3. MIL-H-46170
4. MIL-H-81019

5-35. Which of the following types of hydraulic fluids is used in extremely low temperatures?

1. MIL-H-5606
2. MIL-H-46170
3. MIL-H-81019
4. MIL-H-83282

5-36. When servicing hydraulic systems, you should use what type of filtration?

1. 3-micron (absolute)
2. 3-micron (nominal)
3. 5-micron (absolute)
4. 5-micron (nominal)

IN ANSWERING QUESTION 5-37, REFER TO TABLE 4-4 IN THE TEXTBOOK.

5-37. MIL-H-5606 is the only hydraulic fluid authorized for use with which of the following hydraulic fluid dispensing units?

1. HSU-1
2. D21929
3. H-250-1
4. AM27M- 10

5-38. The H-250-1 hydraulic servicing unit is equipped with what size service hose?

1. 5 ft
2. 6 ft
3. 7 ft
4. 8 ft

5-39. What is the maximum fluid holding capacity of the HSU-1 fluid servicing unit?

1. 1 gal
2. 2 gal
3. 3 gal
4. 4 gal

5-40. With every full stroke of the hand pump, the HSU-1 will deliver what quantity of fluid?

1. 1.5 fluid ounces
2. 2.0 fluid ounces
3. 3.5 fluid ounces
4. 4.0 fluid ounces

5-41. The Model 310 fluid servicing cart uses what type of pump?

1. Single-action hand pump
2. Double-action hand pump
3. Constant displacement, motor-driven pump
4. Variable displacement, motor-driven pump

5-42. What portable hydraulic test stand is replacing the AHT-64 test stand?

1. NAN-2
2. ANT-63
3. A/M27T-3
4. A/M27T-5

5-43. What is the maximum operating pressure of the A/M27T-3 portable hydraulic test stand?

1. 1,500 psi
2. 2,750 psi
3. 3,000 psi
4. 4,500 psi

5-44. The A/M27T-5 portable hydraulic test stand has what maximum flow rate at 3,000 psi?

1. 13 gpm
2. 24 gpm
3. 37 gpm
4. 71 gpm

5-45. The AHT-63 portable hydraulic test stand is powered by what means?

1. A hand pump
3. A diesel engine
3. An electric motor
4. A gasoline engine

5-46. Before operating a portable hydraulic test stand, you must ensure that the reservoir gauge indicates what minimum level?

1. 1/4 full
2. 1/2 full
3. 3/4 full
4. Full

5-47. What is the normal hydraulic fluid operating temperature of a portable hydraulic test stand?

1. 85°F
2. 110°F
3. 135°F
4. 212°F

5-48. What is the recommended minimum inside bent radius for a l-inch test stand hose?

1. 7.31 in.
2. 5.90 in.
3. 5.37 in.
4. 4.30 in.

5-49. When operating a portable hydraulic test stand on an aircraft system, you should use the test stand reservoir mode whenever practical for what reason?

1. This mode ensures positive flow to the aircraft pump
2. This mode eliminates the possibility of aircraft pump cavitation
3. This mode enables aircraft fluid deaeration during system operation
4. This mode allows the test stand reservoir supply valve to remain open, allowing greater back pressure in the return system

5-50. When you are using a portable hydraulic test stand during an aircraft operation, the bypass control should be in what position?

1. Half opened
2. Fully closed
3. Fully opened
4. Adjusted to operating pressure

5-51. During shutdown, before the throttle of an engine-driven portable hydraulic test stand is pushed completely closed, the engine should run at 1000 rpm for approximately how many minutes?

1. 1 min
2. 5 min
3. 10 min
4. 12 min

5-52. You can accomplish simultaneous multisystem operational checks on an aircraft by using which of the following methods?

1. By attaching a T-fitting between the aircraft system's main selector valve
2. By using separate hydraulic test stands for each aircraft system
3. By manifolding two or more aircraft systems to a common test stand
4. Both 2 and 3 above

5-53. The test chamber of the HCT-10 stationary hydraulic test stand is constructed from what material?

1. A l/4-inch steel plate
2. A l/2-inch steel plate
3. A l/2-inch aluminum plate
4. A 7/8-inch aluminum plate

5-54. When testing double-acting hydraulic cylinders on an HCT-10 test stand, which, if any, of the following test circuits should you use?

1. Pump
2. Static
3. Dynamic
4. None of the above

5-55. Air in a hydraulic system generates no problem as long as it remains in what state?

1. Free
2. Filtered
3. Dissolved
4. Entrained

5-56. When free air enters a fluid at a very high rate, the rapid collapse of bubbles generates extremely high local fluid velocities that are converted into impact pressures. What is this phenomenon known as?

1. Starvation
2. Cavitation
3. Modulation
4. Consumption

5-57. To facilitate the removal of free air, what components are sometimes provided at high points in the aircraft hydraulic circulatory system?

1. Check valves
2. Filler valves
3. Restrictor valves
4. Air bleed valves

5-58. While operating a hydraulic test stand, it appears that you have a loaded filter. At what point should you terminate operation of the test stand?

1. Immediately
2. Within 15 minutes of the indication
3. When you complete the operational check
4. After the fluid has cycled enough to allow the temperature to drop below 85°F

5-59. Age-controlled, deteriorative-type hoses used to carry hydraulic fluid in SE units should NOT remain in service for more than what maximum number of years beyond the manufacturer's cure date?

1. 5 yr
2. 6 yr
3. 7 yr
4. 8 yr

5-60. Prior to hydraulic fluid sampling, SE must be run for what minimum length of time?

1. 5 min
2. 7 min
3. 10 min
4. 15 min

5-61. After flushing the fittings on SE, you should open the *reservoir* drain valve and allow approximately what amount of fluid to drain into a waste receptacle?

1. 1 pint
2. 1 quart
3. 1/2 gallon
4. 1 gallon

5-62. When SE is found to be unacceptably contaminated with particulate matter, but the fluid is otherwise considered satisfactory, you should use which of the following decontamination methods?

1. Purging
2. Flushing
3. Purifying
4. Recirculation cleaning

5-63. When the hydraulic fluid of SE contains a substance not readily removed by the internal filters, what decontamination method should you use?

1. Purging
2. Flushing
3. Purifying
4. Recirculation cleaning